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Author(s) Requestor: Steve Wiley (copy marked pages) Task 7 then Jennifer L.

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J. Lamb / K-25 CEP
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Responses to Finding of the DOE Headquarters
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cc: Janifer Lamb
LH Shonka

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Internal Correspondence

MARTIN MARIETTA ENERGY SYSTEMS, INC.

MAY 21 1 55 PM '87

May 21, 1987

J. K. Bailey
T. R. Butz
C. P. East
C. C. Hill
C. W. Kimbrough

L. L. McCauley
L. J. Mezga
M. E. Mitchell
T. P. A. Perry
H. D. Whitehead, Jr.

Responses to Findings of the Department of Energy (DOE) Headquarters
Environmental Survey

Attached is a draft copy of the compiled responses to the findings from the DOE Headquarters Environmental Survey. Please review the information provided to assure the validity of the facts and that the subjective content has been kept at a minimum. There are a few findings for which additional response-related information is still being compiled, however, in the interest of time, this document is being distributed without such input. The responses and additional comments or corrections will be discussed in the meeting scheduled for Friday, May 22, 1987, in Building 9704-1 Conference Room at 1:00 p.m. The responses will then be presented to DOE - Oak Ridge Operations on May 27, 1987, in Building 9711-1 Conference Room, at 8:30 a.m., in preparation for a meeting with the Tennessee Department of Health and Environment.

Let me know if you have any questions.

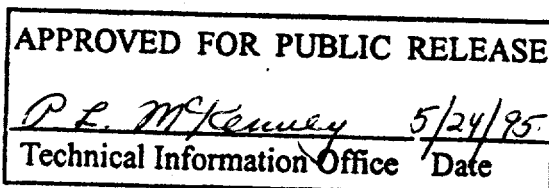
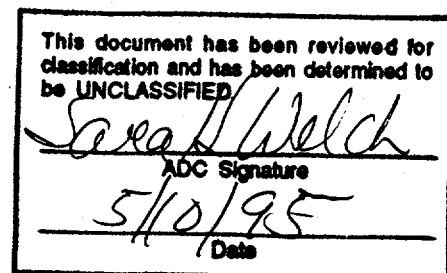


Stephanie Marcus, 9704-1, MS-1, Y-12 (6-8120) - NoRC

SM:lap

Attachment: As Stated

cc/att: M. L. Jones
L. O. Vaughan
File - SM



COMMENTS ON DOE HEADQUARTERS
ENVIRONMENTAL SURVEY FINDINGS

Finding #1:

The Oil and Solvent Drum Storage Area within the northern section of the Salvage Yard (south of Building 9114) contains several leaking drums of oil and RCRA listed solvents. Some of the drums' contents are also known to be contaminated with low-levels of depleted uranium. The soil and standing water in the immediate area are discolored, and other drums in this storage area appear to be in a serious state of deterioration. Weekly inspection logs for the area confirm the presence of leaking drums over several consecutive entries. This situation represents a related and more immediate aspect of a larger (storage) problem included in category III.

Comment: A documented program for identifying and replacing deteriorating and leaking drums has been in place on the Y-12 Oil and Solvent Drum Yard since 1984. This procedure involves weekly inspections of the drum yard with written follow up actions to be taken to correct deficiencies. This procedure has been revised to ensure that leaking drums are replaced within 24 hours. Drums not yet leaking, but found to be in a deteriorated condition, shall be replaced within five working days. As a result of regular inspections over the last two years, approximately 750 drums of solvents and oils have been repackaged. In addition, partial closure of the facility (western diked area) in 1986 resulted in the removal of 2,130 drums of oils and solvents from the yard through sampling, bulk storage and commercial disposal. The TDHE accepted the closure of the west diked area and the oil stained gravel and soil has been removed. The east diked area will remain in operation until a new replacement facility is constructed. At that time, all hazardous waste will be removed and closure of the east dike area will be conducted in accordance with a TDHE approved closure plan.

Finding #2

A potential mixed waste is being treated and disposed of without required RCRA notification and approvals. Contaminated depleted uranium chips is a suspected mixed waste being handled at the site as a low-level waste. The chips are contaminated with very small amounts of an aqueous coolant known as "Trim-sol". While this coolant is not a listed waste, minute quantities of listed solvents (F002 & F005) are known to end up mixed in with the coolant. The facilities that handle the chips are intended to

only manage low level waste. Therefore, these facilities are not currently permitted nor do they have interim status under RCRA, and are operated without controls, monitoring and operating practices normally associated with RCRA facilities to prevent the release of hazardous constituents into the environment. The facilities in question include the uranium chip pits/trenches at the Bear Creek Valley Waste Disposal Area. In addition, the uranium chips mixed waste has not been included in the annual hazardous waste generation summary report submitted to the State. (Note: plant personnel have indicated that the State has been notified that uranium chips containing "Trim-sol" coolant are being disposed of at Bear Creek, however, the State is not aware that the coolant may be contaminated with listed solvents.)

Comment: It is worth noting the shift which occurs through the write up in reference to the hazardousness of the depleted uranium chips. Initially the depleted uranium chips are referenced as a "potential" and "suspected" mixed waste. Later the citation refers to "uranium chips mixed waste", implying that they are RCRA waste. The write up also falsely implies that Trim-sol, an aqueous coolant, is being disposed of in Bear Creek Valley. The coolant is drained from chips prior to transport to BCV. The coolant is collected and treated for reuse. The chips are transported under water for disposal. Incidental, trace quantities of Trim-sol may adhere to the surface of chips being disposed. In addition, the Uranium Chip Oxidation Facility is incorrectly referred to as an incinerator. The unit provides thermal treatment by means other than controlled flame combustion and therefore meets the definition of a thermal treatment unit, not an incinerator.

Uranium chips are source material and as such are regulated by DOE under the Atomic Energy Act and are specifically excluded from regulation under RCRA. Coolant made radioactive as a result of processing the chips has been determined to be byproduct material and is therefore exempt from RCRA regulation until June 1, 1987, when the revised byproduct material definition becomes effective. This rule states that after June 1, 1987, byproduct material will be regulated by AEA, but any nonradioactive contamination present, if hazardous, will be regulated by RCRA.

With respect to the hazardousness of the coolant itself, it is not hazardous. At lathes where the coolant is used, freon may be applied to chem wipes to spot clean the part being machined. Small amounts of freon may reach the aqueous coolant. The TDHE has given two informal opinions in 1984 which would classify the coolant/solvent as hazardous and non-hazardous, respectively. These opinions were both given in a September 1984 meeting between TDHE, EPA Region IV, DOE and Martin Marietta Energy Systems, Inc., and are as follows:

1. coolant mixed with halogenated degreasing solvents is hazardous;

2. mopwaters containing trace amounts of degreasing solvents from incidental drippings are not hazardous.

Presently an effort is underway to determine whether or not residual liquids accompanying the uranium chips during treatment or disposal are RCRA hazardous. It can be argued that the residual liquids are not hazardous due to the incidental, trace amount of solvent present and the existence of plant procedures governing freon application/use.

If the residual liquids are determined to be RCRA hazardous waste then the chips would have to be handled as a hazardous waste. Revised RCRA Part A permit applications and RCRA Part B permit applications would have to be submitted for the UCOF and BCV Disposal area after June 1, 1987.

Finding #3

A backflow preventer at Building 9201-3 was found unsatisfactory on every 6 month inspection since June 1981. Delay in repairing defective backflow preventers could allow potentially hazardous process waters to contaminate the potable water system.

Comment: Shortly after the close-out meeting, the backflow preventer noted in this finding was replaced. Corrective action completed.

CATEGORY III

Finding #4

Mercury contaminated groundwater within the plant site is entering the surface water of East Fork Poplar Creek (EFPC) through outfalls which are not currently monitored. Additionally, there is a potential for uranium, nitrates, solvents, copper, iron and sulfate contaminants on-site to be transported to the surface water through the groundwater. Polychlorinated biphenyl (PCB) contamination on-site also may be entering the groundwater but transport into EFPC is more likely through surface runoff.

Comment: The evidence for mercury contamination of groundwater at the Y-12 Plant is minimal. As noted by Rothschild, et al. (ORNL/TM-9029), some high concentrations of mercury do occur in soil and fill at several areas within the plant but, mercury analyses of groundwater indicate that mercury does not appear to

be moving in significant quantities in an aqueous phase: The highest soluble concentrations found (about 1 ug/l) were limited to three wells. The occurrence of elevated mercury levels, mainly in shallow soils and fill (less than 10 feet) and the background concentrations of mercury observed in most of the wells indicates that the metal has been generally immobilized/retained in upper earth materials. It is true that groundwater which enters the subsurface storm drainage system via sumps and pipe infiltration can become contaminated with mercury before reaching EFPC. The presence of metallic mercury and mercury-contaminated sediment in many storm drains, in concert with chlorinated raw water (once-through cooling water) can lead to significant export of both soluble and particulate mercury to EFPC. Efforts underway to alleviate this situation include the cleaning and relining of pipes and the rerouting of water flow. These activities are part of the Reduction of Mercury in Plant Effluents Line Item project.

With respect to uranium, nitrate and heavy metal contamination: It is known that the plume of the S-3 Ponds extends toward the east and contains uranium, nitrate and heavy metals. The potential exists for these materials to enter the surface water through springs and also infiltration into storm sewers. The extent and movement of this and plumes potentially generated by other sites is being addressed by the Comprehensive Groundwater Study Plan for the Y-12 Area which is currently being prepared by a subcontractor.

With respect to PCB contamination: As acknowledged by the survey team comment, the possibility of PCB transport in groundwater to EFPC is remote because of the high affinity of this contaminant for surfaces. The issue of whether active surface water transport of PCBs into EFPC is currently being addressed by several programs including state of the art biological monitoring techniques and conventional water quality monitoring. Soil sampling is scheduled for key locations around the Z-oil process buildings, tanks and pipelines to identify potential areas with PCB contamination. Until this sampling effort is complete, it cannot be determined whether or not the Z-oil system is a source of PCB contamination to EFPC.

The Area Source Pollution Assessment and Control Plan for EFPC is currently evaluating some of the issues raised by this finding. This study is using the assistance of an engineering contractor, and its objective is to evaluate nonpoint source discharges to EFPC. Nonpoint source discharges include surface water runoff and groundwater infiltration which discharge into EFPC. The program is looking at all pollutants which may be entering EFPC as a result of nonpoint pollution sources. Pollutants being evaluated include: all the nutrients such as nitrates, phosphates, and ammonia; heavy metals such as copper, zinc, mercury, uranium,

iron, and cadmium; and the priority pollutant organic fractions such as volatiles, acid/base neutrals, and PCBs. Since other programs are more thoroughly evaluating mercury contamination, mercury is of secondary importance to this program. Preliminary sampling and surface water modeling has already been conducted; and full scale implementation is scheduled for the summer of 1987 and will likely continue through the spring of 1988.

Finding #5

Untreated process water discharges to EFPC are causing elevated metal concentrations, oil, grease and other organic contamination and high/low pHs. This problem was recognized in an MOU signed in 1983.

Finding #6

Past, and to a lesser extent current, wastewater disposal practices along with the accidental loss/spillage of process materials have contaminated the floodplain of EFPC. The Oak Ridge Interagency Task Force is studying the extent of mercury, other heavy metal, radionuclide and organic contamination in the soils and sediments of EFPC and the potential effects on the groundwater.

Comment: Preliminary results by the Interagency Task Force indicate that ingestion of contaminated soil, the major pathway of concern, is not likely to result in adverse health effects. Studies have culminated in initial engineering assessments being performed to evaluate methods of removing areas of highest contamination levels with minimum impact on the environment.

Finding #7

Radionuclides, VOCs, heavy metals, nitrates, and PCBs have contaminated soils and groundwater at the Bear Creek Valley Waste Disposal Area and have caused degradation of the surface waters and sediments of Bear Creek.

Comment: It should be noted that PCBs have not been detected in the groundwater.

The Disposal Area Remedial Action (DARA) is a funded subproject of the Environmental Improvements Line Item Project. It will provide for the closure of the two Oil Retention Ponds and interim closure for part of the Burial Grounds. Closure plans are being developed for other waste management units in the burial grounds. Investigations are underway to evaluate the extent of the contamination and future remediation requirements. Current waste acceptance criteria include careful screening for suspected contaminants.

Finding #8

Indications of organic and nitrate contamination exist in soils and select groundwater monitoring locations south of the Plant from disposal sites in the Chestnut Ridge area.

Comment: There have been indications of organics in the groundwater at one site, the Chestnut Ridge Security Pits. However, the wells are new, the levels are less than 1 mg/l, and the levels have decreased during the one calendar year for which data has been collected. The site continues to be monitored and a closure plan has been submitted.

Finding #9

Twenty-nine waste disposal (inactive), leak, and spill sites are known or suspected of being sources of environmental contamination. Twenty-one of these sites have been identified through Phase I Installation Assessment for Y-12. Studies to assess the nature and extent of environmental contamination are underway for the major sites and are starting at some of the smaller sites. An additional eight sites have been identified since the Phase I draft report was prepared. These include the radioactive, possibly thorium, contaminated site south of Alpha 5 (Building 9201-5), identified through the recently completed ORNL Radiological Survey; radioactive, possibly uranium, contamination at Building 9728, site of a former laundry operation; elevated radiation levels at a site located north of portal 18 and east of the S-3 Ponds that was possibly used as an unauthorized soil spoils dumping area; Rogers and Kerr Hollow Quarries where a wide range of materials, including hazardous wastes, have been disposed of in the past; cesium 137 and possibly strontium 90 contamination along the CSX railroad tracks east of the Plant, which is being monitored by DOE through ORNL and ORAU; a potential site east of the Chestnut Ridge security pits identified through a 1950 aerial photograph of the area; and finally off-site contamination in the floodplain of East Fork Poplar Creek which is also being monitored and studied by DOE through the Oak Ridge Interagency Task Force. Additional sites of environmental concern may be identified once analysis and interpretation of the data collected in the ORNL Radiological Survey has been completed.

Comment: As stated, additional sites have been identified since the issuance of the Phase I Installation Report. Of the sites mentioned above, the only sites not recognized prior to the survey by the Y-12 Plant are the site north of Portal 18 and the disturbed area located in the 1950's photograph.

Specifics include:

South side of Building 9201-5 - Area was determined to be contaminated with Thorium by the Y-12 Radiological Survey. Site has been remediated by plant personnel.

Area north of Portal 18 and Laundry site - Above background levels of radiation were observed at these sites. Since these areas are within the plant, outdoors where there are no regularly occurring operations, and the radiation levels were of low magnitude; the potential health hazards to plant personnel are low. These sites will be prioritized and incorporated into a broader remedial actions plan for the plant.

Finding #10

In the event of an accident, the potential exists for an uncontrolled, unmonitored atmospheric release of uranium through nonprocess room exhausts. These areas are not usually equipped with either emission controls or radiological samplers. Y-12 estimates that 23% of the total release of uranium from a December 27, 1985 chip fire in Building 9212 was through such an exhaust portal.

Comment: Although a potential exists for uncontrolled accidental releases as identified in the survey findings, several factors minimize the probability of a release which would result in a significant environmental impact. Enriched uranium is about 150 times more radioactive than depleted uranium. For this reason a release of enriched uranium would be more likely to result in a significant radiological dose to the public. The chance of such a release is minimized by safety procedures, criticality control measures and special equipment to contain enriched uranium. These mitigating factors are described in FSARs and OSARs for the facilities where enriched uranium is processed and handled. Also, an evaluation of potential releases from both enriched and depleted uranium processing areas was made recently to determine the potential for contamination of nearby air intakes (Y/EN-1769 and Y/EN-1634). Accidental releases to the work areas have been monitored in the past using an extensive network of health physics samplers. This data has also been used to estimate the quantity of uranium released through room exhausts, as was done in the referenced December 27, 1985, fire incident. To date, none of these evaluations has indicated the need to modify the uranium processing area to achieve more containment or monitoring for room exhausts.

Finding #11

Soils have been and are being, contaminated by inadequate waste storage practices. Past practices of storing open drums at the Interim Drum Storage Yard adjacent to Buildings 9720-32 and 9720-33 (south of the Salvage Yard) have resulted in contamination of the soil with uranium and chromates. Leaking drums and spillage of drum contents during past transfer operations at the Oil and Solvent Drum Storage Area within the Salvage Yard (south of Building 9114) may have resulted in groundwater and surface water contamination. Additionally, due to the leaking drums and the crowded drum storage, this storage area does not fully comply with RCRA requirements. Per 40 CFR 265, Subpart I, all hazardous waste drums must be inspectable, and hazardous waste in leaking or deteriorated drums must be transferred to containers in good conditions or managed in some other way that complies with RCRA storage requirements. The yard contains approximately 1,700 drums of oils and solvents, some of which are uranium contaminated. PCB contamination of soil/gravel also has been documented by Y-12 in the Line Yard west of Building 9720-8 and has probably occurred in the transformer storage yard east of Building 9204-1 and in the old PCB oil storage area in the Salvage Yard.

Comment: The Interim Drum Yard is inspected weekly and leaking drums are repackaged. These activities are documented in an inspection log. Also, drums are being removed from the yard to disposal or indoor storage as space permits. Within the next few months, partial closure of the southern portion of the Interim Drum Yard is scheduled to be conducted in accordance with a closure plan approved by the TDHE. The remaining portion of the drum yard is scheduled for closure in 1989. The yard has never had more than 1000 drums at one time, and it is standard practice to keep the drums closed except during transfer operations.

With respect to the Salvage Yard - Oil and Solvent Drum Storage Yard: The eastern diked portion of the Oil and Solvent Drum Storage Area is still in operations. As a result of partial closure of this facility, a number of drums from the western (closed) area were moved into the eastern (active) portion creating temporarily crowded conditions. However, of the 20 - 30 rows of drums within the active portion only two rows have insufficient aisle space for adequate inspections. The Waste Transportation, Storage, and Disposal Department is working to remove enough drums from this area through commercial disposal or indoor storage at the Oak Ridge Gaseous Diffusion Plant to make sufficient aisle space for inspections. Also, it should be noted that soil sampling and analysis in the Salvage Yard PCB area showed no PCB contamination.

Finding #12

Deteriorating drums at the United Nuclear Company (UNC) Disposal Site on Chestnut Ridge will ultimately release wastes to the soil which could eventually migrate to the groundwater and increase nitrate concentrations in the immediate vicinity above the drinking water standards. There are approximately 29,000 drums disposed at the site containing approximately 300 tons of nitrates.

Comment: There are approximately 29,000 drums of waste disposed at the UNC disposal site on Chestnut Ridge containing approximately 53 metric tons of nitrate as nitrogen. A detailed sampling program and pathways analysis has been completed which indicates that the wastes can be closed in place using available capping technology without exceeding drinking water standards for nitrates in the groundwater. Regulatory approval is being sought for the capping option.

Finding #13

Reliable and defensible estimates of radionuclide emissions cannot be made because the current stacks preclude the proper location of samplers in accordance with recognized guidelines. A stack radiological monitoring project is underway to combine and modify stacks to permit proper sampler location and to provide for accurate continuous sampling for radionuclides and periodic stack flow-rate measurement. Real-time monitors will also be provided for certain stacks to indicate control device failure.

Comment: Since the time of the survey, a major project to upgrade the radiological monitoring capabilities of plant process exhausts from uranium handling areas has been completed. Eighty-five process exhaust stacks have been upgraded to meet EPA stack sampling criteria for particulate sampling (40 CFR Part 60, Appendix A Method 1). New continuous stack sampling and monitoring equipment has been installed on the modified exhaust stacks and has been operational since February 27, 1987. Reliable continuous data on the Y-12 Plant radionuclide emissions from these stacks is now being collected.

Finding #14

Uranium processing operations at Y-12 have released significant amounts (@ 14,000 Kg to 22,000 Kg per year during the period 1981 to 1985) of hydrogen fluoride to the atmosphere impacting on the

ambient air quality of the surrounding area. A hydrogen fluoride scrubber has been installed at Building 9206 and is scheduled for startup early this year. Additional scrubbers are under construction at Building 9212.

Comment: Although the start up of the Building 9206 scrubber has been postponed, it has not been shown that releases of HF from the Y-12 Plant have had an adverse impact on ambient air quality of the surrounding area. Results of ambient air sampling conducted within and around the Y-12 Plant by the Environmental Monitoring Group have consistently shown that ambient HF levels are well within the EPA ambient air quality standards.

Finding #15

The holding capacity of New Hope Pond has been reduced by the accumulation of large volumes of sediment over time and now may not provide sufficient containment for a large spill of hazardous material. The shorter retention time may also decrease its effectiveness as a sedimentation basin, resulting in release of heavy metals, such as mercury, into East Fork Poplar Creek. Y-12 has proposed dredging of New Hope Pond but is presently awaiting resolution of regulatory differences of opinion between the State of Tennessee and EPA Region IV regarding disposition of the dredged material.

Comment: A meeting was held with the State and the EPA on April 9, 1987, to discuss alternatives for New Hope Pond. Samples taken by the Y-12 Plant show that the sediment passes the EP Toxicity test. The EPA and the TDHE are reviewing the information presented, and indications are that a joint decision will be made concerning the disposition of the sludge and future status of New Hope Pond.

Finding #16

The use of fuel-oil ignition on Boilers #3 and 4 will continue to require baghouse bypass resulting in opacity and mass emission limitation exceedances, which can cause or contribute to exceedances of the 24 hour primary health based total suspended particulate standard. These boilers are scheduled for conversion to natural gas ignition during the summer of 1988.

Comment: Boilers 1 and 2 were converted to natural gas ignition (No. 2 started on natural gas on November 12, 1986 and No. 1 started on natural gas on January 19, 1987). Excess opacity due to hot standby firings have been reduced to below the 1% operating

time de minimus level since the outage for conversion began in October 1986. In April 1987, excess opacity emissions occurred for only 6 minutes in the entire month. Hot standby firings on the two oil ignition boilers are kept as low as possible by using them as the base load boilers and operating the two gas ignition boilers for standby and load swing conditions. The remaining two boilers will be converted to natural gas ignition during the summer of 1988.

Finding #17

Suspended solids are entering McCoy Branch from the filled and overflowing fly ash impoundment, potentially affecting aquatic life in this state designated "blue line" stream. Groundwater also may be contaminated by infiltration/percolation of leachate from the fly ash impoundment, McCoy Branch, and/or Rogers Quarry.

Comment: The Y-12 Plant has contracted an architect-engineer to conduct a feasibility study to investigate alternatives to provide for the treatment or elimination of this discharge. The recommended alternative is expected by July 31, 1987. In addition, a proposed Steam Plant Ash Disposal Facility Project has been submitted as a FY 1990 line item project.

Rogers Quarry and the filled ash impoundment are solid waste management units and the potential release of contaminants to groundwater and surface waters will be investigated as part of the RCRA 3004U program. Any requirements for remedial action will be conducted as a result of those investigations. Wells around Rogers Quarry indicate a net seepage of water into groundwater; however, no significant groundwater contamination has been observed.

Finding #18

Volatile organic compounds are being emitted to the atmosphere through standpipes and vents at the Bear Creek Valley Waste Disposal Area. A sampling and characterization program is being conducted by ORNL.

Comment: This finding is based upon preliminary results.

Finding #19

Uncontrolled, unquantified emissions of coal dust to the atmosphere can occur when coal is dropped from the conveyor into open top hoppers at the steam plant. This situation could

potentially contribute to exceedances of the 24 hour total suspended particulate air quality standard. Y-12 has plans to close the hoppers to minimize dust emission.

Comment: Plans are part of the 1991 Line Item Project, Steam Plant Service Life Extension. The project will provide covers for the hoppers and a filtered room exhaust.

Finding #20

Gasoline vapors vented from the underground storage tank at the Y-12 gas station contribute to the ozone nonattainment problem in Anderson County. An equivalent volume of vapor is emitted each time the tank is filled. During 1986, 435,000 gallons of gasoline were purchased.

Comment: The TDHE rules for gasoline storage tanks at service stations require vapor vent controls except under certain conditions spelled out in paragraph 1200-3-18-.10(3). Exemption (c) in this list of exemptions states that the rule does not apply in rural counties. Since Anderson County is considered rural per paragraph 1200-3-18-.02(a) and (b) of the TDHE rules, these controls are not required. Also, per communication with John Patton of the TDHE, Anderson County is attainment for ozone (VOCs). The 40 CFR 81 Subpart C-Section 107 Attainment Status Designations referred to in the survey are out of date and incorrect per Mr. Patton.

Finding #21

The incinerator and shredder at Building 9811 both emit particulate matter to the atmosphere, adding to the ambient air total suspended particulate load. The two chamber incinerator is not equipped with emission controls and visible emissions have been observed.

Comment: Work is in planning to upgrade emission controls for the shredder located at Building 9811. The exhaust system modifications will include the installation of a new cyclone and bag filter. The project is presently unfunded. Emissions from the incinerator will be controlled in the future by limiting the material burned in the incinerator.

Finding #22

Machine and product cleaning wipes may need to be considered and handled as a mixed waste. The wipes contain listed solvents and are disposed of at the Bear Creek Valley Waste Disposal Area as low level waste. Plant personnel have indicated that EPA Region

IV and the State are aware of this practice and have approved it because the wipes do not produce "free standing liquids." However, RCRA does not regulate listed wastes in terms of free standing liquids or quantities; RCRA regulates wastes merely in terms of presence. Furthermore, EPA has proposed to go beyond regulation of free standing liquids and will regulate all free liquids (i.e., liquids that could be released during a filter test or a compression test). As a point of reference, similar wipes used at another DOE facility, the Rocky Flats Plant in Colorado, have been labeled as a mixed waste by the regional EPA and State and are no longer allowed to be disposed of on-site in their nonhazardous landfill.

Comment: The Y-12 Plant has previously obtained approval from the TDHE and EPA Region IV to dispose of uranium contaminated gloves without free standing liquid in the Bear Creek Valley. This approval was extended to uranium contaminated wipes. New procedures are being considered for the handling and disposal of suspected contaminated chem wipes. One future consideration will be to collect all suspected contaminated wipes in 55-gallon drums and send them to ORGDP for incineration.

Rocky Flats procedures are not a proper point of reference since the Y-12 Plant is subject to State of Tennessee regulation, not State of Colorado regulations. State of Colorado hazardous waste regulations are more stringent than EPA hazardous waste regulations. These more stringent regulations should not be applied to the different states in which the various DOE facilities are located.

Finding #23

The incinerator at Building 9731 has been used in trial runs to burn solids, liquids (some chlorinated) and animal carcasses; however, the permit application indicates that only "liquid waste solvents" will be incinerated.

Comment: It should be noted that this incinerator is not presently in use. While it is true that during a trial burn (less than 16 hours), animal carcasses were used to obtain design data for an incinerator for the Biology Division, and that a test burn (less than 40 hours) was conducted using organics; the incinerator has not been used for chlorinated solvents as stated.

Finding #24

Hazardous waste storage practices in some areas of Buildings 9720-31 and 9720-9 do not meet current standards. Inadequate aisle space does not allow for the inspection of waste identification labels on drums or container integrity. The lack

of impervious secondary containment at Building 9720-9 also constitutes an inadequate hazardous waste storage practice (i.e., the present means of providing secondary containment for PCBs stored in this building entails the use of wooden structures that are not sealed to the floor.)

Comment: In Building 9720-31, recent shipments of waste have lessened crowding of drums. In Building 9720-9, an upgrade of the entire facility is in the design stage. The modifications include installation of permanent, concrete diking. Recent shipments of waste have lessened the crowded condition of drums in Building 9720-9 as well. A new building will also be available for PCB drum storage after modifications are made this summer.

Finding #25

Data obtained in ambient air sampling for total suspended particulates may not be accurate and defensible because of siting and quality assurance deficiencies. Relocation of the west monitor is currently underway. Additionally, the filter media being used on the high volume sampler for Total Suspended Particulates (TSP) does not meet reference method requirements (40 CFR 50, Appendix B) for filter efficiency.

Comment: The West TSP monitor has been relocated. The filter media presently being used is the Watman 41 filter. Glass filters are recommended in 40 CFR 50, Appendix B; however, glass filters tried in the past did not maintain structural integrity (i.e., they splintered, resulting in loss of sample in some cases). There may be a new glass filter introduced to the market which we plan to try.

Finding #26

Two small (15 gallon) degreasers in Building 9201-1 are not covered under a current air permit.

Comment: The Tennessee Air Pollution Control Permits for the Building 9201-1 fabrication shops are due to expire on January 1, 1988. A resubmittal of the application is due to the TDHE by November 1, 1987, and will include any modifications to the facility. In addition, the permits will be upgraded to include any items which were missed in the last permitting effort. These degreasers will be added to the permit at this time.

Finding #27

The required number of bacteriological samples are not being run on the Y-12 water distribution system, and the analysis records are not being retained for the required length of time.

Finding #28

Cooling water discharges to EFPC exceed the NPDES upper pH limit of 8.5 due to the natural alkalinity in the makeup water and the corrosion inhibitor being used. Tests on reformulating the corrosion inhibitor to meet the required pH and at the same time meet toxicity criteria have been undertaken and, to date, appear to be successful.

Finding #29

While the State has permitted the disposal of asbestos materials at the sanitary landfill, uranium contaminated asbestos materials are being disposed of at the Bear Creek Valley Waste Disposal Area without State notification or approval.

Comment: Even though State permits and approvals are not required for disposals in Bear Creek Burial Ground, the operation of the facility is patterned after operating requirements from the State Solid Waste Management regulations to ensure proper disposal. Contaminated asbestos is disposed in special waste cells under conditions which meet TDHE requirements. A record of all asbestos disposals in the Bear Creek Burial Ground are submitted to the DOE monthly for transmittal to the TDHE.

Finding #30

The trash radiation monitor operation does not have sufficient quality assurance controls to verify that the analyses used to determine if the trash is contaminated or not are reliable.

Comment: Quality control charts have been developed and are used on a weekly basis to ensure the reliability of the detector crystals, pm tubes and associated electronics at the trash monitoring station.

Finding #31

An open drain valve was discovered on a spill containment structure for a PCB transformer located outside on the south side of Building 9201-5N. Leaving drain valves open on such structures defeats the purpose of providing secondary containment.

Comment: The drain valve for this transformer dike has been closed. It is standard practice to keep such valves closed. In the future, drain valves will be checked during the quarterly inspections for PCB transformers to ensure they are kept in the closed position.

Finding #32

Three discarded 55-gallon drums were observed at the fly ash impoundment. Drum contents are unknown. These may be remnants of a formerly used floatation device or evidence of improperly disposed of materials in an area having a direct pathway to the McCoy Branch, a nearby stream.

Comment: Upon return to this area, four additional drums were found. All seven of the drums have been removed and will be disposed of properly.

Finding #33

Not all groundwater monitoring wells are secured against tampering. A potential exists for vandals to damage the unlocked wells and possibly contaminate the groundwater. A number of wells with cracked slabs and insufficient protection with bumper posts also exist.

Finding #34

The Environmental Laboratory Quality Assurance (QA) program does not entirely meet commonly-accepted QA program requirements. In particular, a formal analyst qualification program has not been implemented; there is no current QA program for asbestos analyses; workstation logbooks are not used in the environmental radiochemistry laboratory (Building 9720-6); the environmental radiochemistry laboratory also lacks formal written procedures for conducting quality control checks of the radiation counting equipment; and a number of buffers in use have exceeded expiration dates.

Comment: An existing procedure outlining the qualification of analysts is now being rewritten. It is scheduled to be issued by October 1, 1987.

The laboratory is now participating in the NIOSH PAT program which includes asbestos counting. In addition, an exchange program is being set up among ORO laboratories for the analysis of samples for asbestos. A program has begun for comparison of results between analysts within the Y-12 Laboratory as well.

Where appropriate, logbooks will be used to record quality data such as spike recovery and duplicate samples. Implementation will begin before June 30, 1987.

A program will begin to provide a monthly review of chemicals having expiration dates in the laboratories. This will be done by the laboratory supervisor or his/her representative. Implementation will begin by June 12, 1987.

NOTE: It is surprising to me that there is no mention of any inadequacies associated with the beryllium stack monitoring program.

Internal Correspondence

MARTIN MARIETTA ENERGY SYSTEMS, INC.

May 21, 1987

J. K. Bailey
T. R. Butz
C. P. East
C. C. Hill
C. W. Kimbrough

L. L. McCauley
L. J. Mezga
M. E. Mitchell
T. P. A. Perry
H. D. Whitehead, Jr.

Responses to Findings of the Department of Energy (DOE) Headquarters Environmental Survey

Attached is a draft copy of the compiled responses to the findings from the DOE Headquarters Environmental Survey. Please review the information provided to assure the validity of the facts and that the subjective content has been kept at a minimum. There are a few findings for which additional response-related information is still being compiled, however, in the interest of time, this document is being distributed without such input. The responses and additional comments or corrections will be discussed in the meeting scheduled for Friday, May 22, 1987, in Building 9704-1 Conference Room at 1:00 p.m. The responses will then be presented to DOE - Oak Ridge Operations on May 27, 1987, in Building 9711-1 Conference Room, at 8:30 a.m., in preparation for a meeting with the Tennessee Department of Health and Environment.

Let me know if you have any questions.

Stephanie Marcus

Stephanie Marcus, 9704-1, MS-1, Y-12 (6-8120) - NoRC

SM:lap

Attachment: As Stated

cc/att: M. L. Jones
L. O. Vaughan
File - SM

MEM
XC TPP
xll
BME
cab
Jpr
cstair

COMMENTS ON DOE HEADQUARTERS
ENVIRONMENTAL SURVEY FINDINGS

Finding #1:

The Oil and Solvent Drum Storage Area within the northern section of the Salvage Yard (south of Building 9114) contains several leaking drums of oil and RCRA listed solvents. Some of the drums' contents are also known to be contaminated with low-levels of depleted uranium. The soil and standing water in the immediate area are discolored, and other drums in this storage area appear to be in a serious state of deterioration. Weekly inspection logs for the area confirm the presence of leaking drums over several consecutive entries. This situation represents a related and more immediate aspect of a larger (storage) problem included in category III.

Comment: A documented program for identifying and replacing deteriorating and leaking drums has been in place on the Y-12 Oil and Solvent Drum Yard since 1984. This procedure involves weekly inspections of the drum yard with written follow up actions to be taken to correct deficiencies. This procedure has been revised to ensure that leaking drums are replaced within 24 hours. Drums not yet leaking, but found to be in a deteriorated condition, shall be replaced within five working days. As a result of regular inspections over the last two years, approximately 750 drums of solvents and oils have been repackaged. In addition, partial closure of the facility (western diked area) in 1986 resulted in the removal of 2,130 drums of oils and solvents from the yard through sampling, bulk storage and commercial disposal. The TDHE accepted the closure of the west diked area, ^{in addition} and the oil stained gravel and soil has been removed. The east diked area will remain in operation until a new replacement facility is constructed. At that time, all hazardous waste will be removed and closure of the east dike area will be conducted in accordance with a TDHE approved closure plan.

as part of the
P.D.H.s Project

* indicate final
disposition of
damaged

Finding #2

A potential mixed waste is being treated and disposed of without required RCRA notification and approvals. Contaminated depleted uranium chips is a suspected mixed waste being handled at the site as a low-level waste. The chips are contaminated with very small amounts of an aqueous coolant known as "Trim-sol". While this coolant is not a listed waste, minute quantities of listed solvents (F002 & F005) are known to end up mixed in with the coolant. The facilities that handle the chips are intended to

* *

are not regulated under RCRA.

only manage low level waste. Therefore, these facilities are not currently permitted nor do they have interim status under RCRA, and are operated without controls, monitoring and operating practices normally associated with RCRA facilities to prevent the release of hazardous constituents into the environment. The facilities in question include the uranium chip pits/trenches at the Bear Creek Valley Waste Disposal Area. In addition, the uranium chips mixed waste has not been included in the annual hazardous waste generation summary report submitted to the State. (Note: plant personnel have indicated that the State has been notified that uranium chips containing "Trim-sol" coolant are being disposed of at Bear Creek, however, the State is not aware that the coolant may be contaminated with listed solvents.)

* hazard
sterilizing
water
UCOF
excess
hazardous
waste

* chips will be
hazardous by
characteristics
- radioactive!

Comment: It is worth noting the shift which occurs through the write up in reference to the hazardousness of the depleted uranium chips. Initially the depleted uranium chips are referenced as a "potential" and "suspected" mixed waste. Later the citation refers to "uranium chips mixed waste", implying that they are RCRA waste. The write up also falsely implies that Trim-sol, an aqueous coolant, is being disposed of in Bear Creek Valley. The coolant is drained from chips prior to transport to BCV. The coolant is collected and treated for reuse. The chips are transported under water for disposal. Incidental, trace quantities of Trim-sol may adhere to the surface of chips being disposed. In addition, the Uranium Chip Oxidation Facility is incorrectly referred to as an incinerator. The unit provides thermal treatment by means other than controlled flame combustion and therefore meets the definition of a thermal treatment unit, not an incinerator.

* still for ch
of State

Issue: is the UCOF
an RCRA facility?

* chips are source
not by-product.

Issue: exempt material
as source but still
has characteristics
- it is our policy
to provide comparable
levels of protection
& not hold behind
a exemption.

Uranium chips are source material and as such are regulated by DOE under the Atomic Energy Act and are specifically excluded from regulation under RCRA. Coolant made radioactive as a result of processing the chips has been determined to be byproduct material and is therefore exempt from RCRA regulation until June 1, 1987, when the revised byproduct material definition becomes effective. This rule states that after June 1, 1987, byproduct material will be regulated by AEA, but any nonradioactive contamination present, if hazardous, will be regulated by RCRA.

since chips
not byproduct
this is not a
a solvent.

With respect to the hazardousness of the coolant itself, it is not hazardous. At lathes where the coolant is used, freon may be applied to chem wipes to spot clean the part being machined. Small amounts of freon may reach the aqueous coolant. The TDHE has given two informal opinions in 1984 which would classify the coolant/solvent as hazardous and non-hazardous, respectively. These opinions were both given in a September 1984 meeting between TDHE, EPA Region IV, DOE and Martin Marietta Energy Systems, Inc., and are as follows:

*

1. coolant mixed with halogenated degreasing solvents is hazardous;

2. mopwaters containing trace amounts of degreasing solvents from incidental drippings are not hazardous.

Presently an effort is underway to determine whether or not residual liquids accompanying the uranium chips during treatment or disposal are RCRA hazardous. It can be argued that the residual liquids are not hazardous due to the incidental, trace amount of solvent present and the existence of plant procedures governing freon application/use.

If the residual liquids are determined to be RCRA hazardous waste then the chips would have to be handled as a hazardous waste. Revised RCRA Part A permit applications and RCRA Part B permit applications would have to be submitted for the UCOF and BCV Disposal area after June 1, 1987.

Finding #3

A backflow preventer at Building 9201-3 was found unsatisfactory on every 6 month inspection since June 1981. Delay in repairing defective backflow preventers could allow potentially hazardous process waters to contaminate the potable water system.

Comment: Shortly after the close-out meeting, the backflow preventer noted in this finding was replaced. Corrective action completed.

CATEGORY III

Finding #4

Mercury contaminated groundwater within the plant site is entering the surface water of East Fork Poplar Creek (EFPC) through outfalls which are not currently monitored. Additionally, there is a potential for uranium, nitrates, solvents, copper, iron and sulfate contaminants on-site to be transported to the surface water through the groundwater. Polychlorinated biphenyl (PCB) contamination on-site also may be entering the groundwater but transport into EFPC is more likely through surface runoff.

Comment: The evidence for mercury contamination of groundwater at the Y-12 Plant is minimal. As noted by Rothschild, et al. (ORNL/TM-9029), some high concentrations of mercury do occur in soil and fill at several areas within the plant but, mercury analyses of groundwater indicate that mercury does not appear to

*TOME agrees w/
monitoring at
New Hope
discuss in
text

be moving in significant quantities in an aqueous phase: The highest soluble concentrations found (about 1 ug/l) were limited to three wells. The occurrence of elevated mercury levels, mainly in shallow soils and fill (less than 10 feet) and the background concentrations of mercury observed in most of the wells indicates that the metal has been generally immobilized/retained in upper earth materials. It is true that groundwater which enters the subsurface storm drainage system via sumps and pipe infiltration can become contaminated with mercury before reaching EFPC. The presence of metallic mercury and mercury-contaminated sediment in many storm drains, in concert with chlorinated raw water (once-through cooling water) can lead to significant export of both soluble and particulate mercury to EFPC. Efforts underway to alleviate this situation include the cleaning and relining of pipes and the rerouting of water flow. These activities are part of the Reduction of Mercury in Plant Effluents Line Item project.

With respect to uranium, nitrate and heavy metal contamination: It is known that the plume of the S-3 Ponds extends toward the east and contains uranium, nitrate and heavy metals. The potential exists for these materials to enter the surface water through springs and also infiltration into storm sewers. The extent and movement of this and plumes potentially generated by other sites is being addressed by the Comprehensive Groundwater Study Plan for the Y-12 Area which is currently being prepared by a subcontractor.

With respect to PCB contamination: As acknowledged by the survey team comment, the possibility of PCB transport in groundwater to EFPC is remote because of the high affinity of this contaminant for surfaces. The issue of whether active surface water transport of PCBs into EFPC is currently being addressed by several programs including state of the art biological monitoring techniques and conventional water quality monitoring. Soil sampling is scheduled for key locations around the Z-oil process buildings, tanks and pipelines to identify potential areas with PCB contamination. Until this sampling effort is complete, it cannot be determined whether or not the Z-oil system is a source of PCB contamination to EFPC.

* discuss other areas in addition to Z-oil process

* reference PCB clean-up programs.

* discuss presence of PCBs in soil near West Hope outfall

The Area Source Pollution Assessment and Control Plan for EFPC is currently evaluating some of the issues raised by this finding. This study is using the assistance of an engineering contractor, and its objective is to evaluate nonpoint source discharges to EFPC. Nonpoint source discharges include surface water runoff and groundwater infiltration which discharge into EFPC. The program is looking at all pollutants which may be entering EFPC as a result of nonpoint pollution sources. Pollutants being evaluated include: all the nutrients such as nitrates, phosphates, and ammonia; heavy metals such as copper, zinc, mercury, uranium,

iron, and cadmium; and the priority pollutant organic fractions such as volatiles, acid/base neutrals, and PCBs. Since other programs are more thoroughly evaluating mercury contamination, mercury is of secondary importance to this program. Preliminary sampling and surface water modeling has already been conducted; and full scale implementation is scheduled for the summer of 1987 and will likely continue through the spring of 1988.

Finding #5

Untreated process water discharges to EFPC are causing elevated metal concentrations, oil, grease and other organic contamination and high/low pHs. This problem was recognized in an MOU signed in 1983.

* requires EFPC to
compliance with
discharge limits

Finding #6

Past, and to a lesser extent current, wastewater disposal practices along with the accidental loss/spillage of process materials have contaminated the floodplain of EFPC. The Oak Ridge Interagency Task Force is studying the extent of mercury, other heavy metal, radionuclide and organic contamination in the soils and sediments of EFPC and the potential effects on the groundwater.

* requires excavation
& removal of
soil from Core
Center & disposal
of on Chestnut
Ridge (2400 yds³)

Comment: Preliminary results by the Interagency Task Force indicate that ingestion of contaminated soil, the major pathway of concern, is not likely to result in adverse health effects. Studies have culminated in initial engineering assessments being performed to evaluate methods of removing areas of highest contamination levels with minimum impact on the environment.

Finding #7

Radionuclides, VOCs, heavy metals, nitrates, and PCBs have contaminated soils and groundwater at the Bear Creek Valley Waste Disposal Area and have caused degradation of the surface waters and sediments of Bear Creek.

Comment: It should be noted that PCBs have not been detected in the groundwater.

* indicates that
PCBs are being
transported but
not observed
in gw., related
to leakage in
trash but not
part of overall
gw. problem

The Disposal Area Remedial Action (DARA) is a funded subproject of the Environmental Improvements Line Item Project. It will provide for the closure of the two Oil Retention Ponds and interim closure capping for part of the Burial Grounds. Closure plans are being developed for other waste management units in the burial grounds. Bear Creek watershed. Investigations ^{have been} underway to evaluate the extent of the contamination and future remediation requirements. Current waste acceptance criteria include careful screening for suspected contaminants.

Improved practices
& operating procedures
w/ wds, waste ch
etc. for designed to
prevent solid waste
from entering the l

Finding #8

Indications of organic and nitrate contamination exist in soils and select groundwater monitoring locations south of the Plant from disposal sites in the Chestnut Ridge area.

** add statement that
add groundwater
exists & data
exists for + Q10.
It indicates...*
Comment: There have been indications of organics in the groundwater at one site, the Chestnut Ridge Security Pits. However, the wells are new, the levels are less than 1 mg/l, and the levels have decreased during the one calendar year for which data has been collected. The site continues to be monitored and a closure plan has been submitted.

** nitrate only found
in soils.*

Finding #9

Twenty-nine waste disposal (inactive), leak, and spill sites are known or suspected of being sources of environmental contamination. Twenty-one of these sites have been identified through Phase I Installation Assessment for Y-12. Studies to assess the nature and extent of environmental contamination are underway for the major sites and are starting at some of the smaller sites. An additional eight sites have been identified since the Phase I draft report was prepared. These include the radioactive, possibly thorium, contaminated site south of Alpha 5 (Building 9201-5), identified through the recently completed ORNL Radiological Survey; radioactive, possibly uranium, contamination at Building 9728, site of a former laundry operation; elevated radiation levels at a site located north of portal 18 and east of the S-3 Ponds that was possibly used as an unauthorized soil spoils dumping area; Rogers and Kerr Hollow Quarries where a wide range of materials, including hazardous wastes, have been disposed of in the past; cesium 137 and possibly strontium 90 contamination along the CSX railroad tracks east of the Plant, which is being monitored by DOE through ORNL and ORAU; a potential site east of the Chestnut Ridge security pits identified through a 1950 aerial photograph of the area; and finally off-site contamination in the floodplain of East Fork Poplar Creek which is also being monitored and studied by DOE through the Oak Ridge Interagency Task Force. Additional sites of environmental concern may be identified once analysis and interpretation of the data collected in the ORNL Radiological Survey has been completed.

Comment: As stated, additional sites have been identified since the issuance of the Phase I Installation Report. Of the sites mentioned above, the only sites not recognized prior to the survey by the Y-12 Plant are the site north of Portal 18 and the disturbed area located in the 1950's photograph.

Specifics include:

South side of Building 9201-5 - Area was determined to be contaminated with Thorium by the Y-12 Radiological Survey. Site has been remediated by plant personnel.

Area north of Portal 18 and Laundry site - Above background levels of radiation were observed at these sites. Since these areas are within the plant, outdoors where there are no regularly occurring operations, and the radiation levels were of low magnitude; the potential health hazards to plant personnel are low. These sites will be prioritized and incorporated into a broader remedial actions plan for the plant.

Finding #10

In the event of an accident, the potential exists for an uncontrolled, unmonitored atmospheric release of uranium through nonprocess room exhausts. These areas are not usually equipped with either emission controls or radiological samplers. Y-12 estimates that 23% of the total release of uranium from a December 27, 1985 chip fire in Building 9212 was through such an exhaust portal.

Comment: Although a potential exists for uncontrolled accidental releases as identified in the survey findings, several factors minimize the probability of a release which would result in a significant environmental impact. Enriched uranium is about 150 times more radioactive than depleted uranium. For this reason a release of enriched uranium would be more likely to result in a significant radiological dose to the public. The chance of such a release is minimized by safety procedures, criticality control measures and special equipment to contain enriched uranium. These mitigating factors are described in FSARs and OSARs for the facilities where enriched uranium is processed and handled. Also, an evaluation of potential releases from both enriched and depleted uranium processing areas was made recently to determine the potential for contamination of nearby air intakes (Y/EN-1769 and Y/EN-1634). Accidental releases to the work areas have been monitored in the past using an extensive network of health physics samplers. This data has also been used to estimate the quantity of uranium released through room exhausts, as was done in the referenced December 27, 1985, fire incident. To date, none of these evaluations has indicated the need to modify the uranium processing area to achieve more containment or monitoring for room exhausts.

* ref. Y-12 & OR
perimeter air
monitoring
systems indicate
no detected or
measurable
problems.

* also monitor in
work place.

Finding #11

Soils have been and are being, contaminated by inadequate waste storage practices. Past practices of storing open drums at the Interim Drum Storage Yard adjacent to Buildings 9720-32 and 9720-33 (south of the Salvage Yard) have resulted in contamination of the soil with uranium and chromates. Leaking drums and spillage of drum contents during past transfer operations at the Oil and Solvent Drum Storage Area within the Salvage Yard (south of Building 9114) may have resulted in groundwater and surface water contamination. Additionally, due to the leaking drums and the crowded drum storage, this storage area does not fully comply with RCRA requirements. Per 40 CFR 265, Subpart I, all hazardous waste drums must be inspectable, and hazardous waste in leaking or deteriorated drums must be transferred to containers in good conditions or managed in some other way that complies with RCRA storage requirements. The yard contains approximately 1,700 drums of oils and solvents, some of which are uranium contaminated. PCB contamination of soil/gravel also has been documented by Y-12 in the Line Yard west of Building 9720-8 and has probably occurred in the transformer storage yard east of Building 9204-1 and in the old PCB oil storage area in the Salvage Yard.

Comment: The Interim Drum Yard is inspected weekly and leaking drums are repackaged. These activities are documented in an inspection log. Also, drums are being removed from the yard to disposal or indoor storage as space permits. Within the next few months, partial closure of the southern portion of the Interim Drum Yard is scheduled to be conducted in accordance with a closure plan approved by the TDHE. The remaining portion of the drum yard is scheduled for closure in 1989. The yard has never had more than 1000 drums at one time, and it is standard practice to keep the drums closed except during transfer operations.

With respect to the Salvage Yard - Oil and Solvent Drum Storage Yard: The eastern diked portion of the Oil and Solvent Drum Storage Area is still in operations. As a result of partial closure of this facility, a number of drums from the western (closed) area were moved into the eastern (active) portion creating temporarily crowded conditions. However, of the 20 - 30 rows of drums within the active portion only two rows have insufficient aisle space for adequate inspections. The Waste Transportation, Storage, and Disposal Department is working to remove enough drums from this area through commercial disposal or indoor storage at the Oak Ridge Gaseous Diffusion Plant to make sufficient aisle space for inspections. Also, it should be noted that soil sampling and analysis in the Salvage Yard PCB area showed no PCB contamination.

recheck.

Finding #12

Deteriorating drums at the United Nuclear Company (UNC) Disposal Site on Chestnut Ridge will ultimately release wastes to the soil which could eventually migrate to the groundwater and increase nitrate concentrations in the immediate vicinity above the drinking water standards. There are approximately 29,000 drums disposed at the site containing approximately 300 tons of nitrates.

* regulated
under 3004(w)

Comment: There are approximately 29,000 drums of waste disposed at the UNC disposal site on Chestnut Ridge containing approximately 53 metric tons of nitrate as nitrogen. A detailed sampling program and pathways analysis has been completed which indicates that the wastes can be closed in place using available capping technology without exceeding drinking water standards for nitrates in the groundwater. Regulatory approval is being sought for the capping option.

Finding #13

Reliable and defensible estimates of radionuclide emissions cannot be made because the current stacks preclude the proper location of samplers in accordance with recognized guidelines. A stack radiological monitoring project is underway to combine and modify stacks to permit proper sampler location and to provide for accurate continuous sampling for radionuclides and periodic stack flow-rate measurement. Real-time monitors will also be provided for certain stacks to indicate control device failure.

* currently in
place.

Comment: Since the time of the survey, a major project to upgrade the radiological monitoring capabilities of plant process exhausts from uranium handling areas has been completed. Eighty-five process exhaust stacks have been upgraded to meet EPA stack sampling criteria for particulate sampling (40 CFR Part 60, Appendix A Method 1). New continuous stack sampling and monitoring equipment has been installed on the modified exhaust stacks and has been operational since February 27, 1987. Reliable continuous data on the Y-12 Plant radionuclide emissions from these stacks is now being collected.

Finding #14

Uranium processing operations at Y-12 have released significant amounts (@ 14,000 Kg to 22,000 Kg per year during the period 1981 to 1985) of hydrogen fluoride to the atmosphere impacting on the

ambient air quality of the surrounding area. A hydrogen fluoride scrubber has been installed at Building 9206 and is scheduled for startup early this year. Additional scrubbers are under construction at Building 9212.

Comment: Although the start up of the Building 9206 scrubber has been postponed, it has not been shown that releases of HF from the Y-12 Plant have had an adverse impact on ambient air quality of the surrounding area. Results of ambient air sampling conducted within and around the Y-12 Plant by the Environmental Monitoring Group have consistently shown that ambient HF levels are well within the EPA ambient air quality standards.

Finding #15

The holding capacity of New Hope Pond has been reduced by the accumulation of large volumes of sediment over time and now may not provide sufficient containment for a large spill of hazardous material. The shorter retention time may also decrease its effectiveness as a sedimentation basin, resulting in release of heavy metals, such as mercury, into East Fork Poplar Creek. Y-12 has proposed dredging of New Hope Pond but is presently awaiting resolution of regulatory differences of opinion between the State of Tennessee and EPA Region IV regarding disposition of the dredged material.

Comment: A meeting was held with the State and the EPA on April 9, 1987, to discuss alternatives for New Hope Pond. Samples taken by the Y-12 Plant show that the sediment passes the EP Toxicity test. The EPA and the TDHE are reviewing the information presented, and indications are that a joint decision will be made concerning the disposition of the sludge and future status of New Hope Pond.

Finding #16

The use of fuel-oil ignition on Boilers #3 and 4 will continue to require baghouse bypass resulting in opacity and mass emission limitation exceedances, which can cause or contribute to exceedances of the 24 hour primary health based total suspended particulate standard. These boilers are scheduled for conversion to natural gas ignition during the summer of 1988.

Comment: Boilers 1 and 2 were converted to natural gas ignition (No. 2 started on natural gas on November 12, 1986 and No. 1 started on natural gas on January 19, 1987). Excess opacity due to hot standby firings have been reduced to below the 1% operating

* it was stated that the State may still be expecting this on schedule since we were from a construction to on quarterly point.

* Additional is to be sought. Vaughan a why not you * issue as to not prepared to proceed.

time de minimus level since the outage for conversion began in October 1986. In April 1987, excess opacity emissions occurred for only 6 minutes in the entire month. Hot standby firings on the two oil ignition boilers are kept as low as possible by using them as the base load boilers and operating the two gas ignition boilers for standby and load swing conditions. The remaining two boilers will be converted to natural gas ignition during the summer of 1988.

Finding #17

Suspended solids are entering McCoy Branch from the filled and overflowing fly ash impoundment, potentially affecting aquatic life in this state designated "blue line" stream. Groundwater also may be contaminated by infiltration/percolation of leachate from the fly ash impoundment, McCoy Branch, and/or Rogers Quarry.

Comment: The Y-12 Plant has contracted an architect-engineer to conduct a feasibility study to investigate alternatives to provide for the treatment or elimination of this discharge. The recommended alternative is expected by July 31, 1987. In addition, a proposed Steam Plant Ash Disposal Facility Project has been submitted as a FY 1990 line item project.

Rogers Quarry and the filled ash impoundment are solid waste management units and the potential release of contaminants to groundwater and surface waters will be investigated as part of the RCRA 3004U program. Any requirements for remedial action will be conducted as a result of those investigations. Wells around Rogers Quarry indicate a net seepage of water into groundwater; however, no significant groundwater contamination has been observed.

* replace
reference to
standards.

Finding #18

Volatile organic compounds are being emitted to the atmosphere through standpipes and vents at the Bear Creek Valley Waste Disposal Area. A sampling and characterization program is being conducted by ORNL.

Comment: This finding is based upon preliminary results.

Finding #19

Uncontrolled, unquantified emissions of coal dust to the atmosphere can occur when coal is dropped from the conveyor into open top hoppers at the steam plant. This situation could

* indicate if
survey says
no health
effect or risk
in immediate
area.

potentially contribute to exceedances of the 24 hour total suspended particulate air quality standard. Y-12 has plans to close the hoppers to minimize dust emission.

Comment: Plans are part of the 1991 Line Item Project, Steam Plant Service Life Extension. The project will provide covers for the hoppers and a filtered room exhaust.

Finding #20

Gasoline vapors vented from the underground storage tank at the Y-12 gas station contribute to the ozone nonattainment problem in Anderson County. An equivalent volume of vapor is emitted each time the tank is filled. During 1986, 435,000 gallons of gasoline were purchased.

Comment: The TDHE rules for gasoline storage tanks at service stations require vapor vent controls except under certain conditions spelled out in paragraph 1200-3-18-.10(3). Exemption (c) in this list of exemptions states that the rule does not apply in rural counties. Since Anderson County is considered rural per paragraph 1200-3-18-.02(a) and (b) of the TDHE rules, these controls are not required. Also, per communication with John Patton of the TDHE, Anderson County is attainment for ozone (VOCs). The 40 CFR 81 Subpart C-Section 107 Attainment Status Designations referred to in the survey are out of date and incorrect per Mr. Patton.

Finding #21

** add that its samples for ~~the~~ document.* The incinerator and shredder at Building 9811 both emit particulate matter to the atmosphere, adding to the ambient air total suspended particulate load. The two chamber incinerator is not equipped with emission controls and visible emissions have been observed. *classified paper incinerator*

Comment: Work is in planning to upgrade emission controls for the shredder located at Building 9811. The exhaust system modifications will include the installation of a new cyclone and bag filter. The project is presently unfunded. Emissions from the incinerator will be controlled in the future by limiting the material burned in the incinerator.

Finding #22

Machine and product cleaning wipes may need to be considered and handled as a mixed waste. The wipes contain listed solvents and are disposed of at the Bear Creek Valley Waste Disposal Area as low level waste. Plant personnel have indicated that EPA Region

IV and the State are aware of this practice and have approved it because the wipes do not produce "free standing liquids." However, RCRA does not regulate listed wastes in terms of free standing liquids or quantities; RCRA regulates wastes merely in terms of presence. Furthermore, EPA has proposed to go beyond regulation of free standing liquids and will regulate all free liquids (i.e., liquids that could be released during a filter test or a compression test). As a point of reference, similar wipes used at another DOE facility, the Rocky Flats Plant in Colorado, have been labeled as a mixed waste by the regional EPA and State and are no longer allowed to be disposed of on-site in their nonhazardous landfill.

again called
the site & called
if they wastes
could be buried
ground - some
was not

Y-12 contains
not hazardous.

* Some one to
contact Per
to work the
State

Comment: The Y-12 Plant has previously obtained approval from the TDHE and EPA Region IV to dispose of uranium contaminated gloves without free standing liquid in the Bear Creek Valley. This approval was extended to uranium contaminated wipes. New procedures are being considered for the handling and disposal of suspected contaminated chem wipes. One future consideration will be to collect all suspected contaminated wipes in 55-gallon drums and send them to ORGDP for incineration.

delete

Rocky Flats procedures are not a proper point of reference since the Y-12 Plant is subject to State of Tennessee regulation, not State of Colorado regulations. State of Colorado hazardous waste regulations are more stringent than EPA hazardous waste regulations. These more stringent regulations should not be applied to the different states in which the various DOE facilities are located.

delete

Finding #23

The incinerator at Building 9731 has been used in trial runs to burn solids, liquids (some chlorinated) and animal carcasses; however, the permit application indicates that only "liquid waste solvents" will be incinerated.

Comment: It should be noted that this incinerator is not presently in use. While it is true that during a trial burn (less than 16 hours), animal carcasses were used to obtain design data for an incinerator for the Biology Division, and that a test burn (less than 40 hours) was conducted using organics; the incinerator has not been used for chlorinated solvents as stated.

Finding #24

Hazardous waste storage practices in some areas of Buildings 9720-31 and 9720-9 do not meet current standards. Inadequate aisle space does not allow for the inspection of waste identification labels on drums or container integrity. The lack



of impervious secondary containment at Building 9720-9 also constitutes an inadequate hazardous waste storage practice (i.e., the present means of providing secondary containment for PCBs stored in this building entails the use of wooden structures that are not sealed to the floor.)

Comment: In Building 9720-31, recent shipments of waste have lessened crowding of drums. In Building 9720-9, an upgrade of the entire facility is in the design stage. The modifications include installation of permanent, concrete diking. Recent shipments of waste have lessened the crowded condition of drums in Building 9720-9 as well. A new building will also be available for PCB drum storage after modifications are made this summer.

this sand
it is not a
real, strong
ly!

Finding #25

Data obtained in ambient air sampling for total suspended particulates may not be accurate and defensible because of siting and quality assurance deficiencies. Relocation of the west monitor is currently underway. Additionally, the filter media being used on the high volume sampler for Total Suspended Particulates (TSP) does not meet reference method requirements (40 CFR 50, Appendix B) for filter efficiency.

Comment: The West TSP monitor has been relocated. The filter media presently being used is the Watman 41 filter. Glass filters are recommended in 40 CFR 50, Appendix B; however, glass filters tried in the past did not maintain structural integrity (i.e., they splintered, resulting in loss of sample in some cases). There may be a new glass filter introduced to the market which we plan to try.

Finding #26

Two small (15 gallon) degreasers in Building 9201-1 are not covered under a current air permit.

Comment: The Tennessee Air Pollution Control Permits for the Building 9201-1 fabrication shops are due to expire on January 1, 1988. A resubmittal of the application is due to the TDHE by November 1, 1987, and will include any modifications to the facility. [In addition, the permits will be upgraded to include any items which were missed in the last permitting effort.] These degreasers will be added to the permit at this time.

delete - replace
permits will
revised for
completeness &
upgraded as a

Finding #27

The required number of bacteriological samples are not being run on the Y-12 water distribution system, and the analysis records are not being retained for the required length of time.

**No response
yet.* →

Finding #28

Cooling water discharges to EFPC exceed the NPDES upper pH limit of 8.5 due to the natural alkalinity in the makeup water and the corrosion inhibitor being used. Tests on reformulating the corrosion inhibitor to meet the required pH and at the same time meet toxicity criteria have been undertaken and, to date, appear to be successful.

Finding #29

While the State has permitted the disposal of asbestos materials at the sanitary landfill, uranium contaminated asbestos materials are being disposed of at the Bear Creek Valley Waste Disposal Area without State notification or approval.

Comment: Even though State permits and approvals are not required for disposals in Bear Creek Burial Ground, the operation of the facility is patterned after operating requirements from the State Solid Waste Management regulations to ensure proper disposal. Contaminated asbestos is disposed in special waste cells under conditions which meet TDHE requirements. A record of all asbestos disposals in the Bear Creek Burial Ground are submitted to the DOE monthly for transmittal to the TDHE.

Finding #30

The trash radiation monitor operation does not have sufficient quality assurance controls to verify that the analyses used to determine if the trash is contaminated or not are reliable.

Comment: Quality control charts have been developed and are used on a weekly basis to ensure the reliability of the detector crystals, pm tubes and associated electronics at the trash monitoring station.

** reference collection
procedure & additional
statistical studies.*

Finding #31

An open drain valve was discovered on a spill containment structure for a PCB transformer located outside on the south side of Building 9201-5N. Leaving drain valves open on such structures defeats the purpose of providing secondary containment.

Comment: The drain valve for this transformer dike has been closed. It is standard practice to keep such valves closed. In the future, drain valves will be checked during the quarterly inspections for PCB transformers to ensure they are kept in the closed position.

may be a symptom of a
larger problem - so
monitoring plan to release
need to review spec & etc

Finding #32

Three discarded 55-gallon drums were observed at the fly ash impoundment. Drum contents are unknown. These may be remnants of a formerly used floatation device or evidence of improperly disposed of materials in an area having a direct pathway to the McCoy Branch, a nearby stream.

* drums were empty + belatedly to be
+ belatedly to be
+ belatedly to be
Comment: Upon return to this area, four additional drums were found. All seven of the drums have been removed and will be disposed of properly.

Finding #33

Not all groundwater monitoring wells are secured against tampering. A potential exists for vandals to damage the unlocked wells and possibly contaminate the groundwater. A number of wells with cracked slabs and insufficient protection with bumper posts also exist.

* all wells now being monitored are locked; cement to be provided.

Finding #34

The Environmental Laboratory Quality Assurance (QA) program does not entirely meet commonly-accepted QA program requirements. In particular, a formal analyst qualification program has not been implemented; there is no current QA program for asbestos analyses; workstation logbooks are not used in the environmental radiochemistry laboratory (Building 9720-6); the environmental radiochemistry laboratory also lacks formal written procedures for conducting quality control checks of the radiation counting equipment; and a number of buffers in use have exceeded expiration dates.

Comment: An existing procedure outlining the qualification of analysts is now being rewritten. It is scheduled to be issued by October 1, 1987.

The laboratory is now participating in the NIOSH PAT program which includes asbestos counting. In addition, an exchange program is being set up among ORO laboratories for the analysis of samples for asbestos. A program has begun for comparison of results between analysts within the Y-12 Laboratory as well.

Where appropriate, logbooks will be used to record quality data such as spike recovery and duplicate samples. Implementation will begin before June 30, 1987.

A program will begin to provide a monthly review of chemicals having expiration dates in the laboratories. This will be done by the laboratory supervisor or his/her representative. Implementation will begin by June 12, 1987.

NOTE: It is surprising to me that there is no mention of any inadequacies associated with the beryllium stack monitoring program.

this will not be included in the response.